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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/730,783 | 12/07/2000 | Sang Jin Oh | 2832-0118P | 8908 |

2292 7590 05/20/2005

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| EXAMINER |
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OLSEN, ALLAN W

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| ART UNIT | PAPER NUMBER |
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1763

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,783

Applicant(s)

OH ET AL.

Examiner

Allan Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) 10 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 2 and 4-9 is/are rejected.
7) ☒ Claim(s) 3 is/are objected to.
8) ☒ Claim(s) 10 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 07 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

In view of the appeal brief filed on February 23, 2005, PROSECUTION IS
HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the
following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply
under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied
by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130,
1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Election/Restrictions

Claim 10 is withdrawn from further consideration pursuant to 37 CFR 1.142(b),
as being drawn to a nonelected invention, there being no allowable generic or linking
claim. Applicant timely traversed the restriction (election) requirement in the reply filed
on October 14, 2004.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can
be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the
claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various
claims was commonly owned at the time any inventions covered therein were made absent any
evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out
the inventor and invention dates of each claim that was not commonly owned at the time a later
invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)
and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,709,598 issued to Nishio et al. in view of US Patent 5,747,931 issued to Riddle et al. (hereinafter, Nishio and Riddle).

Nishio teaches using a forming roll (roll punch) to pattern abrasive tape. Nishio teaches how to create a patterned forming roll, which is equivalent to applicants claimed roll punch. Nishio teaches applying a photoresist over the surface of the forming roll. Nishio teaches uniformly patterning the resist thereby forming an etching mask through which selected portions of the underlying forming roll surface are exposed. Nishio teaches etching the exposed surface of the forming roll (see column 7, lines 20-53).

Nishio does not teach making a forming roll wherein the forming roll pattern comprises continuous circles formed around the roll.

Riddle teaches making a plasma display panel by using a forming roll wherein the forming roll pattern comprises continuous circles formed around the roll.

It would have been obvious to use Nishio's method of making a forming roll with a pattern comprising continuous circles formed around the roll because Riddle teaches that forming rolls have utility in the fabrication of plasma display panels and Riddle teaches that the pattern of forming rolls used for the fabrication of plasma display panels should comprise continuous circles formed around the roll.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio and Riddle, as applied to claim 1 above, and further in view of U.S. Patent 5,182,188 issued to Cole, Jr. et al. (hereinafter, Cole).

Nishio does not provide specific detail regarding the manner in which the etching mask is patterned. The combination of Nishio and Riddle does not teach using a laser beam to partially removing the etching mask.

Cole teaches using a laser to partially remove an etch mask (col. 3, line 58).

It would have been obvious for one skilled in the art to use a laser beam to partially remove the etching mask of Nishio because Cole teaches that by using a laser patterns with very high resolutions can be obtained (column 6, line 48).

Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio and Riddle as applied to claim 1 in view of U.S. Patent 5,021,120 issued to Buck et al. (hereinafter, Buck) and further in view of U.S. Patent 5,858,106 issued to Ohmi et al. (hereinafter, Ohmi).

The above noted teachings of Nishio and Riddle are herein relied upon.

Additionally it is noted that Nishio and Riddle teach forming recesses with vertical sidewalls and removing the photoresist etching mask before using the patterned forming roll for its intended purpose. See: figure 3; column 5, lines 20-32; column 6, lines 24-30 and 45-53; and column 8, lines 1-10 of Nishio and column 5, lines 60-62 of Riddle.

The combination of Nishio and Riddle does not teach rotating a workpiece while it is being etched in an ultrasonic etch bath.

Buck teaches etching the exposed portions of a workpiece by agitating a workpiece that is immersed in an etchant bath to which ultrasonic energy is being provided by multiple ultrasonic sources that are disposed around the workpiece (abstract; col. 3, lines 4-7; figure 1).

Ohmi teaches moving a workpiece both vertically and laterally while it is being etched in an ultrasonic etch bath (column 3, lines 26-27; column 6, lines 21-40).

It would have been obvious for one skilled in the art to use an ultrasonic bath while etching the exposed portions of Nishio's forming roll because Buck teaches the

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application of ultrasound increases the rate of etching and also inhibits the formation of etchant concentration gradients thereby providing a highly uniform etching process (col. 1, ln 17- col. 2, ln 3). It would have been obvious to one skilled in the art to rotate a workpiece during an ultrasound enhanced etching process because rotating the cylindrical forming roll of Riddle is a simple means of achieving both the agitation called for by Buck and the horizontal and vertical displacement of the workpiece that is called for by Buck.

Nishio does not describe removing the workpiece from the etchant prior to the step of removing the photoresist mask.

It would have been obvious to one skilled in the art to remove the forming roll from the etchant prior to the step of removing the etching mask in order to: 1) preserve the integrity of the pattern that has been transferred to the forming roll, or 2) place the masked forming roll into a different bath that would be effective in removing the masking material.

Allowable Subject Matter

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

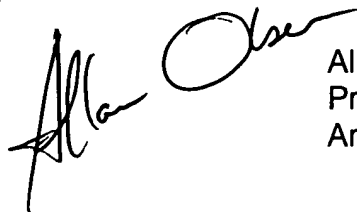
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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Allan Olsen', is written over a horizontal line.

Allan Olsen
Primary Examiner
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